CLAIMS

What is claimed is:

1. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving user input through a user interface of a computer system associated with the automated unmanned rental station;

(b) receiving in an antenna in communication with said computer system, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment having a radio frequency identification tag moved through said portal;

(c) creating a first rental transaction record for said first one of the plurality of pieces of rental equipment moved through said portal utilizing data from an inventory database stored in said computer system that matches a first unique data interpreted from said first radio frequency identification signal; and

(d) altering a status in said inventory database of said first one of the plurality of pieces of rental equipment.

2. A method according to claim 1 further comprising:

receiving a user identification input through said user interface of said computer system.

3. A method according to claim 1 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display.

4. A method according to claim 1 further comprising:

determining the validity of said user identification input.

5. A method according to claim 4 further comprising:

when said user identification input is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

6. A method according to claim 1 further comprising:

receiving a check-out equipment input through said user interface.

7. A method according to claim 6 further comprising:

receiving a reference number input through said user interface; and

receiving a number of days input through said user interface.

8. A method according to claim 6 further comprising:

deactivating an alarm component of said computer system for a predetermined period of time after receiving said check-out equipment input.

9. A method according to claim 8 further comprising:

when said predetermined period of time has expired, reactivating said alarm component of said computer system.

10. A method according to claim 1 further comprising:

transmitting automatically said first rental transaction record from said computer system to at least one predetermined location.

11. A method according to claim 1 further comprising:

storing said first rental transaction record in said computer system; and

transmitting said first rental transaction record from said computer system to at least one predetermined location at a specified time.

12. A method according to claim 1 further comprising:

determining the validity of said first unique data.

13. A method according to claim 12 further comprising:

when said first unique data is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

14. A method according to claim 1 wherein said first rental transaction record contains at least one of an equipment type, a reference number, a user identification number, a number of days checked out, a date, and a time.

15. A method according to claim 1 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked out.

16. A method according to claim 1 further comprising:

repeating acts (b) through (d) for a second unique data interpreted from a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal, wherein a second rental transaction record is created and a status in said inventory database of said

second one of the plurality of pieces of rental equipment is altered.

17. A method according to claim 1 further comprising:

generating an invoice with said computer system based on said first rental transaction record.

18. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving user input through a user interface of a computer system associated with the automated unmanned rental station;

(b) receiving in an antenna in communication with said computer system, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment having the radio frequency identification tag moved through said portal;

(c) comparing a first unique data interpreted from said first radio frequency identification signal for said first one of the plurality of pieces of rental equipment moved through said portal to a plurality of rental transaction records in an inventory database stored in said computer system that matches said first unique data; and

(d) altering a status in said inventory database of said first one of the plurality of pieces of rental equipment.

19. A method according to claim 18 further comprising:

receiving a user identification input through said user interface of said computer system;

20. A method according to claim 18 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display.

21. A method according to claim 18 further comprising:

determining the validity of said user identification input.

22. A method according to claim 21 further comprising:

when said user identification input is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

23. A method according to claim 18 further comprising:

receiving a return equipment input through said user interface.

24. A method according to claim 23 further comprising:

deactivating an alarm component of said computer system for a predetermined period of time after receiving said return equipment input.

25. A method according to claim 24 further comprising:

when said predetermined period of time has expired, reactivating said alarm component of said computer system.

26. A method according to claim 18 further comprising:

when said first unique data does not match at least one of said plurality of rental transaction records in said inventory database stored in said computer system, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

27. A method according to claim 18 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

28. A method according to claim 27 further comprising:

entering electronically into a log a date and time said altered status of said first one of the plurality of pieces of rental equipment is indicated as checked in.

29. A method according to claim 27 further comprising:

generating an invoice with said computer system when said altered status in said inventory database of said first one of

the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

30. A method according to claim 18 further comprising:

repeating acts (b) through (d) for a second unique data interpreted from a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal, wherein said second unique data is compared to said plurality of rental transaction records in said inventory database stored in said computer system and a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

31. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving in an antenna in communication with a computer system associated with the automated unmanned rental station, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment having a radio frequency identification tag moved through said portal;

(b) comparing a first unique data interpreted from said first radio frequency identification signal for said first one of the plurality of pieces of rental equipment moved through said portal to a plurality of rental transaction records in an inventory database stored in said computer system that matches said first unique data; and

(c) altering a status in said inventory database of said first one of the plurality of pieces of rental equipment.

32. A method according to claim 31 further comprising:

activating an alarm component of said computer system after receiving said first unique data; and

beginning a timed countdown for a predetermined period of time for said alarm component to sound.

33. A method according to claim 32 further comprising:

deactivating said alarm component of said computer system when said predetermined period of time expires.

34. A method according to claim 31 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

35. A method according to claim 34 further comprising:

entering electronically into a log a date and time said altered status of said first one of the plurality of pieces of rental equipment is indicated as checked in.

36. A method according to claim 34 further comprising:

generating an invoice with said computer system when said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

37. A method according to claim 31 further comprising:

when said first unique data does not match at least one of said plurality of rental transaction records in said inventory database stored in said computer system, generating

electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

38. A method according to claim 31 further comprising:

repeating acts (a) through (c) for a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal, wherein said second radio frequency identification signal is compared to said plurality of rental transaction records in said inventory database stored in said computer system and a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

39. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving in an antenna in communication with a computer system associated with the automated unmanned rental station, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment having the radio frequency identification tag moved through said portal;

(b) comparing a first unique data interpreted from said first radio frequency identification signal for said first one of the plurality of pieces of rental equipment moved through said portal to an inventory list of a plurality of pieces of rental equipment in an inventory database stored in said computer system that matches said first unique data; and

(c) creating a first rental transaction record for said first one of the plurality of pieces of rental equipment moved through said portal utilizing data from said inventory database stored in said computer system that matches said first unique data; and

(d) altering a status in said inventory database of said first one of the plurality of pieces of rental equipment.

40. A method according to claim 39 further comprising:

activating an alarm component of said computer system after receiving said first unique data; and

beginning a timed countdown for a predetermined period of time for said alarm component to sound.

41. A method according to claim 40 further comprising:

deactivating said alarm component of said computer system when said predetermined period of time expires.

42. A method according to claim 39 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked out.

43. A method according to claim 42 further comprising:

generating an invoice with said computer system based on said first rental transaction record.

44. A method according to claim 39 further comprising:

transmitting automatically said first rental transaction record from said computer system to at least one predetermined location.

45. A method according to claim 39 further comprising:

storing said first rental transaction record in said computer system; and

transmitting said first rental transaction record from said computer system to at least one predetermined location at a specified time.

46. A method according to claim 39 further comprising:

when said first unique data does not match at least one of said plurality of pieces of rental equipment in said inventory list in said inventory database stored in said computer system, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

47. A method according to claim 39 further comprising:

repeating acts (a) through (d) for a second unique data interpreted from a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal, wherein said second unique data is compared to said plurality of pieces of rental equipment in said inventory list in said inventory database stored in said computer system and a second rental transaction record is created and a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

48. A method according to claim 39 wherein said first rental transaction record contains at least one of an equipment type, a date, and a time.

49. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving in an antenna in communication with a computer system associated with the automated unmanned rental station, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment moved through said portal;

(b) receiving a user identification input through a user interface of said computer system;

(c) comparing a first unique data interpreted from said first radio frequency identification signal for said first one of the plurality of pieces of rental equipment moved through said portal to a plurality of rental transaction records in an inventory database stored in said computer system that matches said first unique data; and

(d) altering a status of said first one of the plurality of pieces of rental equipment in said inventory database.

50. A method according to claim 49 further comprising:

determining the validity of said user identification input.

51. A method according to claim 50 further comprising:

when said user identification input is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

52. A method according to claim 49 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display.

53. A method according to claim 49 further comprising:

activating an alarm component of said computer system after receiving said first unique data; and

beginning a timed countdown for a first predetermined period of time for said alarm component to sound.

54. A method according to claim 53 further comprising:

receiving a return equipment input through said user interface of said computer system.

55. A method according to claim 54 further comprising:

deactivating said alarm component of said computer system for a second predetermined period of time after receiving said

return equipment input through said user interface of said computer system.

56. A method according to claim 55 further comprising:

storing in said computer system said first unique data.

57. A method according to claim 56 further comprising:

repeating acts (c) and (d) for a second unique data interpreted from a second radio frequency identification signal stored in said computer system from a second one of the plurality of pieces of rental equipment moved through said portal, wherein said second unique data is compared to said plurality of rental transaction records in said inventory database stored in said computer system and a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

58. A method according to claim 55 further comprising:

when said second predetermined period of time has expired, reactivating said alarm component of said computer system.

59. A method according to claim 55 further comprising:

when a second unique data interpreted from a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal is received before said second predetermined period of time has

expired, repeating acts (c) and (d) for said second unique data, wherein said second unique data is compared to said plurality of rental transaction records in said inventory database stored in said computer system and a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

60. A method according to claim 49 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display.

61. A method according to claim 49 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

62. A method according to claim 61 further comprising:

generating an invoice with said computer system when said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked in.

63. A method according to claim 61 further comprising:

entering electronically into a log a date and time said altered status of said first one of the plurality of pieces of rental equipment is indicated as checked in.

64. A method according to claim 49 wherein said plurality of rental transaction records further comprise an inventory list of a plurality of pieces of rental equipment having a status indicating that said plurality of pieces of rental equipment are checked out.

65. A method for an automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the method comprising:

(a) receiving in an antenna in communication with a computer system associated with the automated unmanned rental station, and located near a portal of the automated unmanned rental station, a first radio frequency identification signal from a first one of the plurality of pieces of rental equipment moved through said portal;

(b) receiving a user identification input through a user interface of said computer system;

(c) receiving a check-out equipment input through said user interface of said computer system; and

(d) creating a first rental transaction record for said first one of the plurality of pieces of rental equipment moved through said portal utilizing data from said inventory database stored in said computer system that matches a first unique data interpreted from said first radio frequency identification signal; and

(e) altering a status of said first one of the plurality of pieces of rental equipment in an inventory database stored in said computer system.

66. A method according to claim 65 further comprising:

determining the validity of said user identification input.

67. A method according to claim 66 further comprising:

when said user identification input is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

68. A method according to claim 65 further comprising:

receiving a reference number input through said user interface; and

receiving a number of days input through said user interface.

69. A method according to claim 65 further comprising:

activating an alarm component of said computer system after receiving said first unique data; and

beginning a timed countdown for a first predetermined period of time for said alarm component to sound.

70. A method according to claim 69 further comprising:

deactivating said alarm component of said computer system for a second predetermined period of time after receiving said check-out equipment input through said user interface.

71. A method according to claim 70 further comprising:

when said second predetermined period of time has expired, reactivating said alarm component of said computer system.

72. A method according to claim 70 further comprising:

when a second unique data interpreted from a second radio frequency identification signal from a second one of the plurality of pieces of rental equipment moved through said portal is received before said second predetermined period of time has expired, repeating acts (d) and (e) for said second unique data, wherein a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

73. A method according to claim 70 further comprising:

storing in said computer system said first unique data.

74. A method according to claim 65 further comprising:

determining the validity of said first unique data.

75. A method according to claim 74 further comprising:

when said first unique data is determined to be invalid, generating electronically an exception report having a date and time stamp; and

sending automatically said exception report electronically to at least one predetermined location.

76. A method according to claim 65 wherein said first rental transaction record contains at least one of an equipment type, a user reference number, a user identification number, a number of days checked out, a date, and a time.

77. A method according to claim 65 further comprising:

repeating acts (d) and (e) for a second unique data interpreted from a second radio frequency identification signal stored in said computer system from a second one of the plurality of pieces of rental equipment moved through said portal, wherein a status in said inventory database of said second one of the plurality of pieces of rental equipment is altered.

78. A method according to claim 65 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display.

79. A method according to claim 65 wherein said altered status in said inventory database of said first one of the plurality of pieces of rental equipment indicates that said first one of the plurality of pieces of rental equipment is checked out.

80. A method according to claim 65 further comprising:

generating an invoice with said computer system based on said first rental transaction record.

81. An automated unmanned rental station for use in cooperation with a plurality of pieces of rental equipment stored in the automated unmanned rental station, each of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto, the automated unmanned rental station comprising:

at least one antenna for tracking the movement of the plurality of pieces of rental equipment through a portal of the automated unmanned rental station, wherein said at least one antenna receives a radio frequency identification signal for each of the plurality of pieces of rental equipment having the attached radio frequency identification tag when moved through said portal; and

a computer system in communication with said at least one antenna, said computer system having a user interface for allowing interaction between at least one user and an equipment rental software loaded into a memory of said computer system, said equipment rental software further comprising,

a radio frequency identification tracking module for interpreting a unique data from each of said radio frequency identification signals received by said at least one antenna,

an inventory database module for storing a data on each of the plurality of pieces of rental equipment, wherein each of said unique data corresponds to a one of

said data for a one of said plurality of pieces of rental equipment, and

a reporting module for generating at least one report regarding a rental activity of the plurality of pieces of rental equipment.

82. An automated unmanned rental station according to claim 81 further comprising:

a user identification device;

an alarm for generating audible sound; and

said equipment rental software further comprises,

a security alarm module for controlling said alarm,

a user identification module for receiving input from said at least one user through said user identification device and for authenticating said at least one user,

an automated billing module for generating at least one invoice based on said rental activity of the plurality of pieces of rental equipment, and

a communication module for transferring said at least one report regarding said rental activity of the plurality of pieces of rental equipment to at least one external location.

83. An automated unmanned rental station according to claim 81 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted

through speech recognition, a barcode reader, and a touch screen of a graphics display, and further wherein said equipment rental software further comprises a user interface module for controlling the interaction between said at least one user and said equipment rental software.

84. An automated unmanned rental station according to claim 81 wherein when a first one of the plurality of pieces of rental equipment is moved through said portal, a first rental transaction record is created.

85. An automated unmanned rental station according to claim 81 wherein said portal is one of a doorway, a gate, or a pass through opening.

86. An automated unmanned rental system, the system comprising:

at least one unmanned rental site, said at least one unmanned rental site further comprising,

a plurality of pieces of rental equipment stored in an automated unmanned rental station located at said at least one unmanned rental site, wherein each of the plurality of pieces of rental equipment has a radio frequency identification tag attached thereto,

at least one antenna for tracking the movement of the plurality of pieces of rental equipment through a portal of the automated unmanned rental station, wherein said at least one antenna receives a radio frequency identification signal for each of the plurality of pieces of rental equipment having the attached radio frequency identification tag when moved through said portal, and

a computer system in communication with said at least one antenna, said computer system having a user interface for allowing interaction between at least one user and an equipment rental software loaded into a memory of said computer system;

a central rental processing center, said central rental processing center further comprising a central rental processing center computer system having a central rental processing center software loaded into a memory of said central rental processing center computer system; and

a communications medium for allowing communication between said computer system at said at least one unmanned rental site and said central rental processing center computer system at said central rental processing center, wherein said central rental processing center computer system at said central rental processing center receives over said communications medium at least one report regarding a rental activity generated by said computer system at said at least one unmanned rental site.

87. An automated unmanned rental system according to claim 86 wherein said equipment rental software further comprises:

a radio frequency identification tracking module for interpreting said unique signals received from said at least one antenna;

an inventory database module for storing a data on each of the plurality of pieces of rental equipment, wherein each of said unique data corresponds to a one of said data for a one of said plurality of pieces of rental equipment; and

a reporting module for generating said at least one report regarding said rental activity from said at least one unmanned rental site.

88. An automated unmanned rental system according to claim 86 wherein said central rental processing center computer system at said central rental processing center receives over said communications medium at least one exception report regarding a

rental activity generated by said computer system at said at least one unmanned rental site.

89. An automated unmanned rental system according to claim 86 wherein said central rental processing center computer system generates at least one invoice for said rental activity of said at least one report.

90. An automated unmanned rental system according to claim 86 wherein said communications medium is one of an intranet, the Internet, a LAN, a WAN, a wireless communication network, and a satellite communication network.

91. An automated unmanned rental system according to claim 86 wherein said at least one unmanned rental site further comprises:

a user identification device;

an alarm for generating audible sound; and

said equipment rental software further comprises,

a security alarm module for controlling said alarm,

a user identification module for receiving input from said at least one user through said user identification device and for authenticating said at least one user, and

a communication module for transferring said at least one report regarding said rental activity to said central

rental processing center computer system at said central rental processing center.

92. An automated unmanned rental system according to claim 86 wherein said user interface of said computer system comprises at least one of a keyboard, a mouse, a voice command interpreted through speech recognition, a barcode reader, and a touch screen of a graphics display, and further wherein said equipment rental software further comprises a user interface module for controlling the interaction between said at least one user and said equipment rental software.

93. An automated unmanned rental system according to claim 86 wherein said portal is one of a doorway, a gate, or a pass through opening.

94. A method for an automated unmanned rental system for use in cooperation with at least one unmanned rental site having a plurality of pieces of rental equipment, wherein each of the plurality of pieces of rental equipment has a radio frequency identification tag attached thereto, the method comprising:

(a) loading a central rental processing center software on a central rental processing center computer;

(b) receiving in said central rental processing center computer a plurality of data uploaded from the at least one unmanned rental site;

(c) processing said plurality of data and posting a portion of said plurality of data to at least one subsystem;

(d) adding at least one additional piece of equipment having a radio frequency identification tag attached thereto to an inventory database, and assigning said at least one additional piece of equipment to a one of the at least one unmanned rental site;

(e) removing at least one of the plurality of pieces of rental equipment having a radio frequency identification tag attached thereto from said inventory database; and

(f) generating at least one management report based on said plurality of data uploaded from the at least one unmanned rental site.

95. A method according to claim 94 wherein said at least one subsystem is an accounting subsystem and further comprising:

generating at least one invoice based on said portion of said plurality of data posted to said accounting subsystem.

96. A method according to claim 94 wherein said at least one subsystem is an inventory subsystem and further comprising:

generating at least one inventory report based on said portion of said plurality of data posted to said inventory subsystem.

97. A method according to claim 94 wherein said plurality of data further comprises transaction data stored in a transaction data file captured by a computer system at the at least one unmanned rental site.

98. A method according to claim 97 wherein said plurality of data is uploaded from the at least one unmanned rental site to said central rental processing center computer under the control of a communication software loaded on said central rental processing center computer and loaded on said computer system at the at least one unmanned rental site.

99. A method according to claim 97 wherein said processing act further comprises:

determining if a first transaction data in said transaction data file has a missing data;

when said transaction data file has said missing data, extracting said first transaction data into an exception report; and

when said transaction data file has no said missing data, extracting said first transaction data into an edit list.

100. A method according to claim 94 further comprising:

repeating acts (b) and (c) for a next plurality of data uploaded from the at least one unmanned rental site, processing said next plurality of data, and posting a portion of said next plurality of data to said at least one subsystem.

101. A method according to claim 94 further comprising:

repeating acts (d) and (e) for adding a plurality of additional pieces of equipment to said inventory database, and for removing a plurality of pieces of rental equipment from said inventory database.